УДК 616.12-008.318:616.831-005.8

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ARRHYTHMIAS IN STROKE PATIENTS

Introduction

A stroke occurs when blood flow to a part of the brain is disrupted, leading to brain damage. There are two main types of strokes, Hemorrhagic Stroke is caused by the rupture of a blood vessel, leading to bleeding in or around the brain & Ischemic Stroke occurs when a blood clot blocks blood flow to the brain, often due to atherosclerosis.

Thirty-three million people have atrial fibrillation (AF), a disorder of heart rhythm [1]. Over the past several decades, we have learned that this dysrhythmia originates in the interplay between genetic predisposition, ectopic electrical activity, and abnormal atrial tissue substrate and then feeds back to remodel and worsen tissue substrate and, thereby, propagates itself [2]. Although the importance of AF partly derives from its strong association with ischemic stroke, there have not been as many advances in our understanding of the mechanisms of stroke in AF. Current views rest on a century old hypothesis that fibrillation of the atrium produces stasis of blood, which causes thrombus formation and embolism to the brain. When other abnormalities are acknowledged to play a role, the dysrhythmia is still considered the primary cause of thromboembolism [3]. Although this formulation is intuitively appealing, recent work suggests that the pathogenesis of stroke in AF is more complicated and involves factors in addition to the dysrhythmia. Patients need daily ECG monitoring, as arrhythmias can be complicated by thrombosis and chronic heart failure if diagnosed late [4, 5].

Goal

To analyze the rate and types of arrhythmias in patients with stroke in neurology department.

Material and methods of research

This is cross-section single-centre study of 30 patients, conducted in the neurology department of Gomel city clinical hospital no.3 (Belarus). This study was conducted for a period of 1 month in 2025. The mean age of patient starts from 50 years to 80 years, in which 19 patients are having arrhythmias. Out of them 12 are males and 7 are females.

The results of the research and their discussion

Patient who has arrhythmia are 60% out of total stroke patients. It is predominantly present in males 63% (tab. 1). There average HR is 60–120 bpm. In males ECG they have additionally 30% of hypertrophy and 10% are having myocardial infarction.

In female 37% are having arrhythmias. In addition to arrhythmia ECG reveals that 23% of female are having ventricular hypertrophy. There HR average is about 55–110 bpm.

Table 1 – Types of arrhythmias in stroke patients

Types of Arrhythmias	Ischemic stroke		Hemorrhagic stroke		Total in Patients n= 19 (%)
	M	F	M	F	
Atrial fibrillation	4	1	2	1	8 (42.1%)
Blocks	2	2	1	1	6 (31.6%)
Extra systole	2	1	0	0	3 (15.8%)
Paroxysmal Tachycardia	1	0	0	1	2 (10.5%)
Total	9	4	3	3	19 (100%)

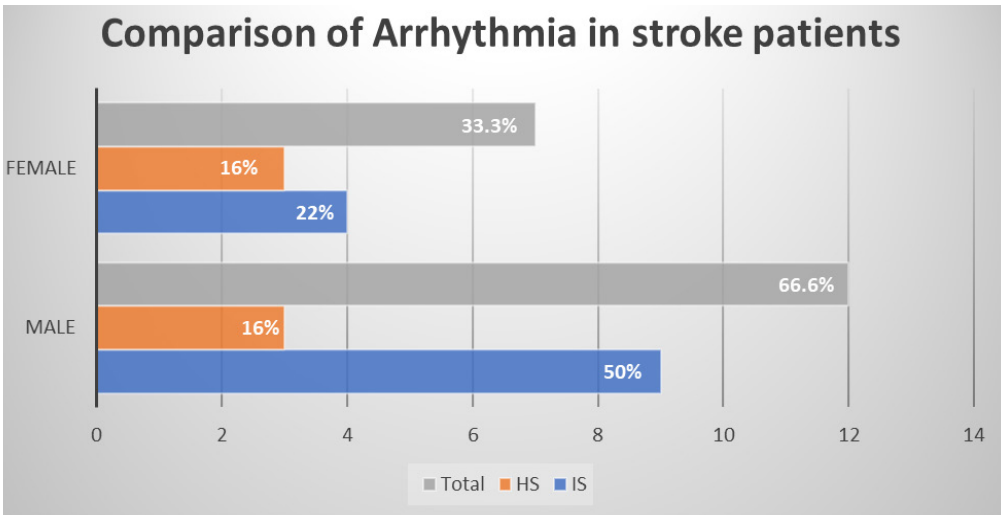

Figure 1 – Arrhythmias in patients with stroke

In comparison we can see males are predominant with arrhythmias in ischemic stroke 50% as compared to females but in hemorrhagic stroke arrhythmias both are equal in them about 16%.

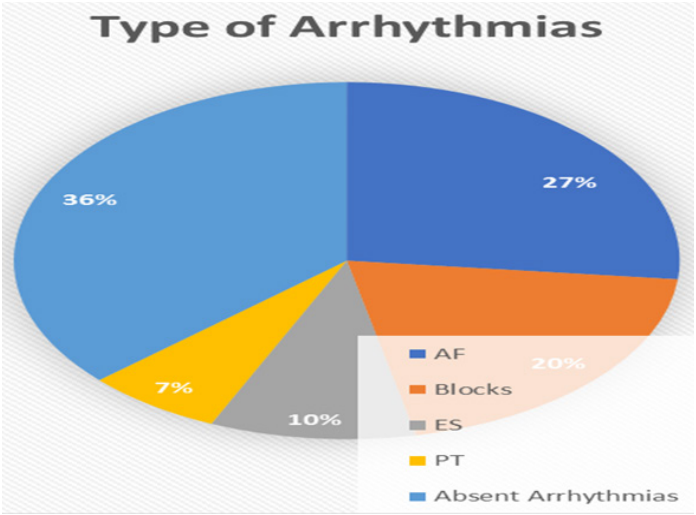

Figure 2 – Types of arrhythmias in patients with stroke

Conclusion

The rate of arrhythmia in stroke patients is 60%. AF is mostly present 27% in patients and then blocks about 20%. We also observe that in males it is predominant about 66%. Strong correction of arrhythmias is needed to avoid further complications and need good observations

in other patients that are normal patients about 36%. These observations suggest that both ischemic and hemorrhagic strokes can lead to significant cardiac complications, necessitating a multidisciplinary approach to management. Early identification and treatment of arrhythmias may improve outcomes for stroke patients, highlighting the importance of integrating cardiological assessment in the overall care of individuals who experience strokes.

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УДК 616.12-008.331.1:616.831-005.8

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ARTERIAL HYPERTENSION IN STROKE PATIENTS

Introduction

Stroke is the world's second-leading cause of death and the third-leading cause of disability [1]. With an estimated 5.5 million deaths each year globally. The burden of stroke is not limited to its high death rate, its high morbidity also leaves up to 50% of survivors permanently impaired [2]. Stroke is a clinical state that includes an abrupt loss of focal brain function and symptoms that either continue longer than 24 hours or result in (early) death [3]. Strokes are generally categorized into two major types: ischemic stroke and hemorrhagic stroke. Ischemic stroke is caused by a disruption in the blood flow to a portion of the brain, resulting in an abrupt loss of function, whereas hemorrhagic stroke is caused by a blood vessel rupture [2]. Most strokes (80%) are ischemic, while the proportional burden of hemorrhagic versus ischemic stroke varies by population [4]. The cause of stroke and its hemodynamic implications vary depending on stroke subtype and disease presentation time. However, high blood pressure, also known as hypertension, is one of the most important modifiable risk factors for stroke. [5]. Elevated blood pressure has the potential to rupture these tiny perforators, resulting in a hemorrhagic stroke, or to obstruct them, leading to an ischemic stroke. Controlling the major risk factors for stroke, such as hypertension, is necessary to prevent strokes. Therefore, it is important to prevent stroke by monitoring blood pressure regularly and improving lifestyle.

Goal

To analyze the rate and stages of arterial hypertension in patients with stroke.